

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

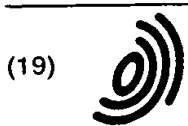
Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problems Mailbox.**

THIS PAGE BLANK (USPTO)



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 0 841 009 A2**

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
13.05.1998 Bulletin 1998/20

(51) Int. Cl.⁶: **A21C 11/04**

(21) Application number: **97203516.6**

(22) Date of filing: **12.11.1997**

(84) Designated Contracting States:
**AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC
NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **12.11.1996 IT MI962348**
16.05.1997 IT MI971158

(71) Applicant:
Italiana Agro Alimentare S.r.l.
27029 Vigevano (Pavia) (IT)

(72) Inventors:
• **Sigoni, Riccardo**
27029 Vigevano - Pavia (IT)
• **Varvello, Franco**
27029 Vigevano - Pavia (IT)
• **Rosso, Marco**
17026 Noli - Savona (IT)

(74) Representative:
Siniscalco, Fabio et al
c/o JACOBACCI & PERANI S.p.A.
Via Visconti di Modrone, 7
20122 Milano (IT)

(54) **A device for shaping portions of bread dough or the like**

(57) A device for shaping portions of bread dough or the like comprises a roller (1; 25) having opposed side handles (2; 26), a substantially central body (3; 27), a plurality of discs (5; 29) projecting from the central body (3; 27) and extending around its periphery, and shaping elements (4; 28) projecting from the central body (3;

27). The device has the advantage of simplifying and speeding up operations to shape portions of bread dough and, at the same time, producing loaves which can easily be divided into separate bread rolls having a certain regularity of shape.

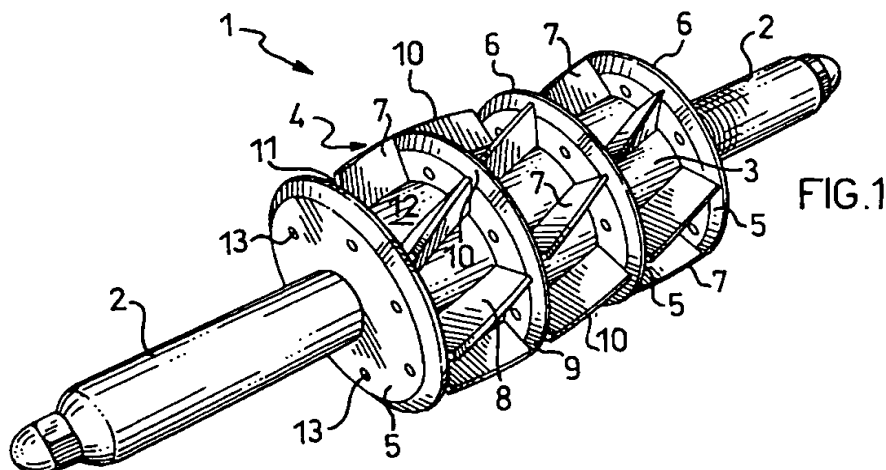


FIG.1

EP 0 841 009 A2

dent

Description

The present invention relates in general to a device for shaping portions of bread dough or the like.

In the field of the production of bread and similar baked products it is known to shape portions of bread dough into suitable substantially flat loaves so that the loaf can easily be divided into separate bread rolls.

The shaping is generally performed by the baker who imparts to the prepared bread dough lines of weakening which facilitate its division into portions once the loaf is baked.

However, the shaping operation by the baker is somewhat lengthy and tedious and gives the loaves an artificial appearance which is not pleasing to final purchasers who prefer to buy small bread rolls.

A recognized requirement in the field of the shaping of portions of bread dough is that of simplifying and speeding up operations to shape bread dough and, at the same time, producing loaves which can easily be divided into separate bread rolls having a certain regularity of shape.

The object of the present invention is to propose a shaping device which satisfies the aforementioned requirement.

This object is achieved by a shaping device comprising a roller having opposed side handles, a substantially central body, a plurality of discs projecting from the central body and extending around its periphery, and shaping elements projecting from the central body.

According to one embodiment of the device according to the invention, the central body is cylindrical and the elements comprise a plurality of walls projecting therefrom, extending transversely relative to the discs, and arranged in series, each series extending substantially helically relative to the central body.

According to another embodiment of the shaping device according to the invention, the central body of the roller has a polygonal cross-section and the shaping elements comprise a plurality of moulds projecting from the central body.

Preferably, the side handles of the roller are rotatable relative to the central body and the moulds are arranged in uniformly-spaced annular series and in a manner such that, in each series, a respective mould projects from each face of the central body.

The moulds are preferably hollow and have a pattern with a substantially closed profile.

According to a further embodiment of the device according to the invention, the shaping elements comprise a plurality of annular moulds projecting from the central body and a plurality of walls disposed annularly, alternating with the moulds, and projecting from the body.

Further characteristics and advantages of the shaping devices according to the invention will become clear from the description of two preferred embodiments, from the description of apparatus incorporating

the device of the first embodiment, and from the description of the shaping of a portion of bread dough with the device of the second embodiment, the descriptions being given by way of non-limiting example, with reference to the appended drawings, in which:

Figure 1 is a perspective view of a device for shaping portions of bread dough according to the invention,

Figure 2 is a partially-sectioned perspective view of apparatus for shaping portions of bread dough, incorporating the device of Figure 1,

Figure 3 is a perspective view of a loaf produced by the device of Figure 1,

Figure 4 is a perspective view of another device for shaping bread dough according to the invention,

Figure 5 is a perspective view of a tool for cutting bread dough, for association with the shaping device of Figure 4,

Figure 6 shows schematically the use of the device of Figure 4 and of the cutting tool of Figure 5 for shaping bread dough, and

Figure 7 is a perspective view of the bread produced by the shaping of the dough in the manner shown in Figure 6.

Figure 1 shows a device for shaping bread dough according to the invention, constituted by a roller, generally indicated 1. The roller is shaped substantially like a rolling pin and has two opposed side handles 2 and a cylindrical central body 3. The handles 2 and the central body 3 define an axis of rotation of the roller 1.

The cylindrical body 3 has a smooth surface from which discs 5 and shaping elements, generally indicated 4, project in order to cut a portion of bread dough to confer a precise shape on the resulting loaf after baking.

The cylindrical body 3, the elements 4, and the discs 5 are made of plastics material suitable for contact with foods.

The discs 5 project perpendicularly from the cylindrical body 3 and are arranged around its periphery, forming spaced-apart rings lying in planes perpendicular to the axis of rotation.

In particular, the discs 5 are spaced apart uniformly and have respective outer edges 6 facing away from the cylindrical body 3 and lying on a cylindrical surface coaxial with the cylindrical body 3.

The shaping elements 4 comprise walls 7 which are arranged in series 8 and extend substantially transversely relative to the discs 5 which are intersected by the walls 7 at intersections 9.

The series 8 of walls 7 are spaced uniformly on the cylindrical body 3 and extend over its entire length from one first end wall, indicated 5', to the other.

In the roller 1 according to the invention, the series 8 extend substantially helically relative to the cylindrical body 3. In particular, each wall 7 of a series 8 is disposed and extends between two consecutive discs 5 and is inclined at a predetermined angle thereto.

The walls 7 are also twisted so as to be perpendicular to the surface of the cylindrical body 3 and each has an edge 10 which lies on the cylindrical surface defined by the edges 6 of the discs 5. The edges 6, 10 of the discs 5 and of the walls 7, respectively, are blade-shaped and, at the intersections 9 between the edges 6, 10 of the discs 5 and of the walls 7, the walls 7 have grooves 11 beside the discs 5.

The discs 5 and the walls 7 define a plurality of substantially rhomboid cells 12 each of which is intended to define an individual portion 12' of the loaf indicated P in Figure 3.

The discs have a through-hole 13 in each cell 12, in the vicinity of the surface of the cylindrical body 3.

With regard to the manual use of the shaping device described above, the user arranges a strip of bread dough on a work surface. He then applies the rolling-pin like roller 1 with a certain pressure such as not to cause pieces of dough to be separated.

Owing to the helical shape of the walls 7, the dough is cut but also stretched torsionally. This deformation is taken up resiliently by the dough but can confer on the baked loaf P a rustic and home-made appearance since, although its lines of weakening 14 are substantially straight, they follow an uneven path.

Moreover, instead of having a square appearance, the individual portions 12' have a rustic and roundish appearance with some surface irregularities.

The shaping device described above can advantageously be used in automatic dough-shaping apparatus.

Apparatus of the type specified is generally indicated 20 in Figure 2. It has a support frame 21 and a substantially horizontal conveyor belt 22 extending between rollers 23, at least one of which is driven.

The belt 22 is intended to support portions of bread dough and defines a movable conveyor surface which has a direction of movement A. The movable surface follows a path extending between a kneading station, not shown and of conventional type, in which the dough is deposited on the belt 22, and a collecting board 24 used for passing the shaped portions of dough into an oven.

The apparatus 20 according to the invention comprises, above the above-defined movable surface, a roller 1 as described.

The shaping roller 1 is freely rotatable on its handles 2 which act as pins. They are engaged on the frame 21 at the sides of the belt 22. The roller 1 is substantially parallel to the movable surface and substantially perpendicular to the direction A, and the cylindrical

surface defined by the edges 6, 10 of the discs 5 and of the walls 7 is disposed at a predetermined distance from the movable conveyor surface such that the portions of bread dough interfere with the roller 1 whilst being supported on the movable conveyor surface.

In fact, once the portions of dough have been deposited on the belt 22, they are pushed against the roller 1. At this point, the portions of dough cause the roller 1 to rotate, shaping the portions of dough which come out from beneath the roller 1 and are collected on the board 24.

In addition to the advantage mentioned above, the shaping device according to the invention produces loaves which can be divided up easily and at low cost.

Moreover, although the loaves thus formed have a certain firmness, once divided into portions, they form individual bread rolls which have a certain regularity of shape and a pleasing appearance.

With reference now to Figures 4-7, Figure 4 shows a device for shaping bread dough according to the invention constituted by a roller, generally indicated 25.

The roller is shaped substantially like a rolling pin and has two opposed side handles 26 and a central body 27 with a pentagonal cross-section.

The handles 26 and the central body 27 define an axis of rotation of the roller 25.

The handles 26 are rotatable relative to the central body 27.

On the central body 27 there is a series of shaping elements, generally indicated 28, and discs 29 which are intended to cut into a portion of bread dough in order to confer respective predetermined patterns and lines of weakening on the resulting loaf after the dough has been cut and the individual pieces baked.

The central body 27, the elements 28, and the discs 29 are made of plastics material suitable for contact with foods.

Each disc 29 lies in a plane perpendicular to the axis of rotation of the roller, the discs being spaced apart uniformly and each having an outer cutting edge 30 which lies on a cylindrical surface coaxial with the central body 27.

The shaping elements 28 comprise moulds 31 disposed in uniformly-spaced annular series.

The moulds 31 have a substantially drop-like pattern and, in particular, each series of moulds 31 is disposed between two consecutive discs 29.

Moreover, each mould 31 has a cavity 32 and an edge 33 which projects relative to the cylindrical surface defined by edges 30 of the discs 29.

Both the edges 30 of the discs 29 and the edges 33 of the moulds 31 are blade-shaped and define the lines of weakening 39 and the drop-like shapes 40 of the dough, generally indicated 1 in Figure 6.

The discs 29 have a series of through-holes 34 and each mould 31 has a through-hole 35 for preventing the establishment, during the shaping of the dough, of a vacuum which would cause the dough to adhere

strongly to the walls of the roller without being detached therefrom after shaping.

Figure 5 shows a preferred tool, generally indicated 36, for cutting portions of bread dough, for association with the shaping device illustrated in Figure 4.

The cutting tool comprises two thin, flat cutting walls 37, preferably made of metal, joined in a V-shape at one side, and a hollow tubular metal handle 38 arranged transverse the metal walls, joining the free ends of the walls 37, and welded thereto.

Figure 6 shows the application of the device of Figure 4 and of the cutting tool of Figure 5 for the shaping of bread dough to produce a "V"-shaped loaf which can be divided into portions and which has predetermined impressed patterns.

In this application, the user arranges a strip of bread dough on a work surface.

He then applies the rolling-pin-like roller 25 with a certain pressure such as not to cause pieces of dough to be separated and rotates it, moving it over the dough, for example, as indicated by the arrows.

Owing to the shape of the moulds 31, the dough is cut but is also stretched torsionally.

This deformation is taken up resiliently by the dough but can confer a rustic and home-made appearance on the finished bread; the presence of impressed patterns also gives it a novel appearance.

Moreover, the discs 29 confer on the dough lines of weakening 39 which enable the finished bread to be divided easily into portions.

The dough thus formed is then cut with the cutting tool 36 so as to produce the loaf shown in Figure 7, once the dough is baked.

This loaf, generally indicated P1, is "V"-shaped and is characterized by a line of weakening 39 which enables it to be divided easily into portions, and by two drop-shaped impressions 40.

It has a pleasing rustic and home-made appearance and is also novel by virtue of the presence of the aforesaid drop-shaped impressions 40 which render it particularly attractive to the final consumer.

Naturally, an expert in the art may apply suitable modifications to the shaping device described in Figure 4 and, for example, may introduce "V"-shaped walls projecting from the central body of the roller, arranged annularly, and alternating with the moulds in order to incise or cut the bread dough during shaping.

In order to satisfy further and contingent requirements, an expert in the art may apply to the above-described shaping devices, apparatus and shaping method many further modifications and variations all of which, however, fall within the scope of protection of the present invention as defined in the appended claims.

Claims

1. A device for shaping portions of bread dough or the like, comprising a roller (1; 25) having opposed side

handles (2; 26), a substantially central body (3; 27), a plurality of discs (5; 29) projecting from the central body (3; 27) and extending around its periphery, and shaping elements (4; 28) projecting from the central body (3; 27).

2. A shaping device according to Claim 1, in which the central body (3) is cylindrical and the elements (4) comprise a plurality of walls (7) projecting therefrom, extending transversely relative to the discs (5), and arranged in series (8), each series extending substantially helically relative to the central body (3).

3. A shaping device according to Claim 1 or Claim 2, in which the discs (5) are perpendicular to the central body (3) and uniformly spaced apart and each wall (7) of a series (8) is disposed between two consecutive discs (5) and is inclined at a predetermined angle thereto.

4. A shaping device according to Claim 3, in which each wall (7) has a twist such that it is perpendicular to the central body (3).

5. A shaping device according to Claim 3, in which the discs (5) and the walls (7) define a plurality of cells (12), the discs (5) having at least one through-hole (13) in each cell (12).

6. A shaping device according to any one of Claims 1 to 3, in which the discs (5) and the walls (7) have respective blade-shaped edges (6, 10) facing away from the central body (3).

7. A shaping device according to Claim 6, in which the edges (6, 10) of the discs (5) and of the walls (7), respectively, lie on a single cylindrical surface coaxial with the central body (3).

8. A shaping device according to Claim 1, in which the central body (27) has a polygonal cross-section and the elements (28) comprise a plurality of moulds (31) projecting therefrom.

9. A shaping device according to Claim 8, in which the side handles (26) are rotatable relative to the central body (27).

10. A shaping device according to Claim 8 or Claim 9, in which the discs (29) are perpendicular and spaced apart uniformly relative to the central body (27) and the moulds (31) are arranged in uniformly-spaced annular series.

11. A shaping device according to any one of Claims 8 to 10, in which each series of moulds (31) is arranged in a manner such that a respective mould

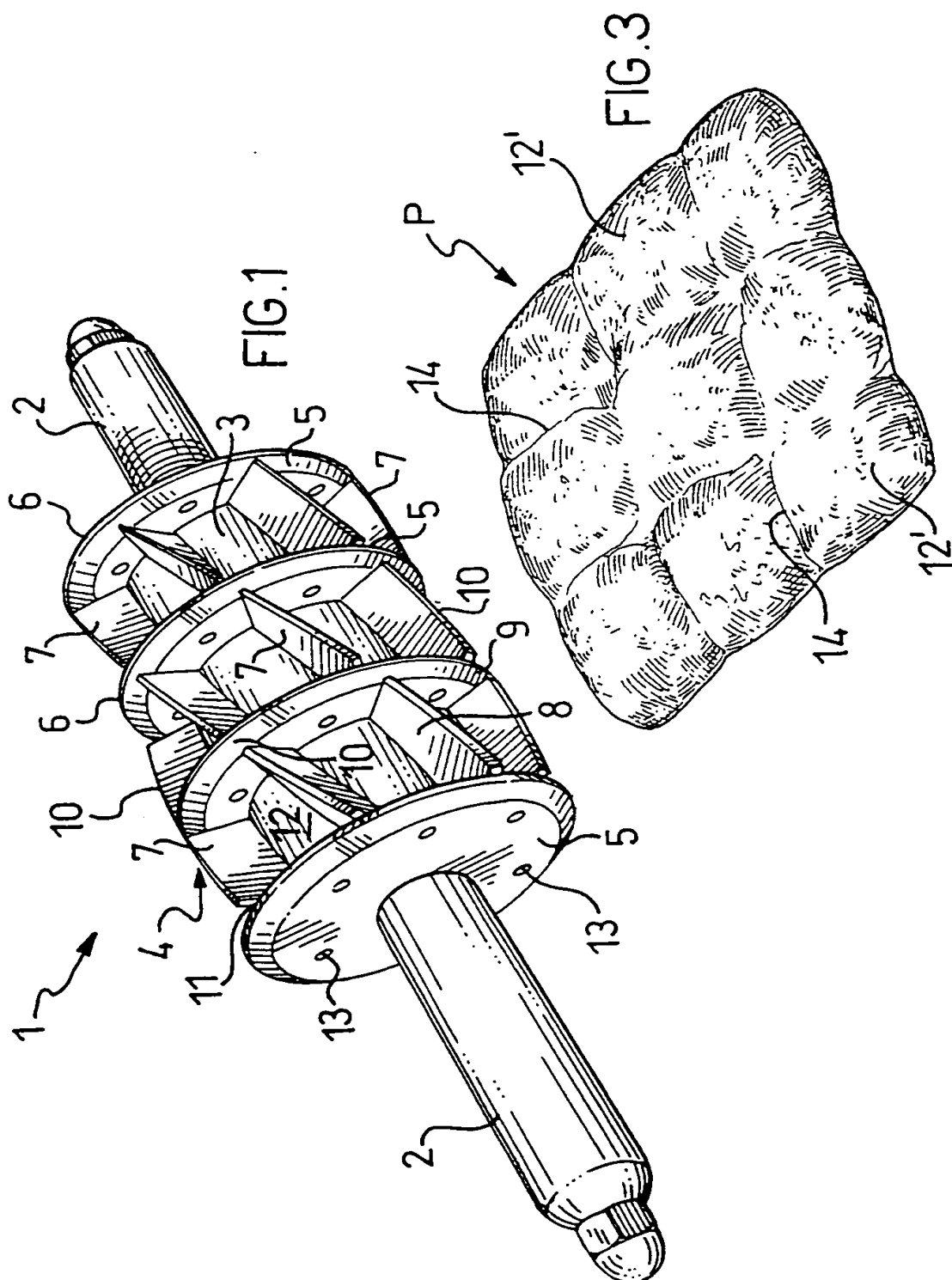
projects from each face of the central body (27).

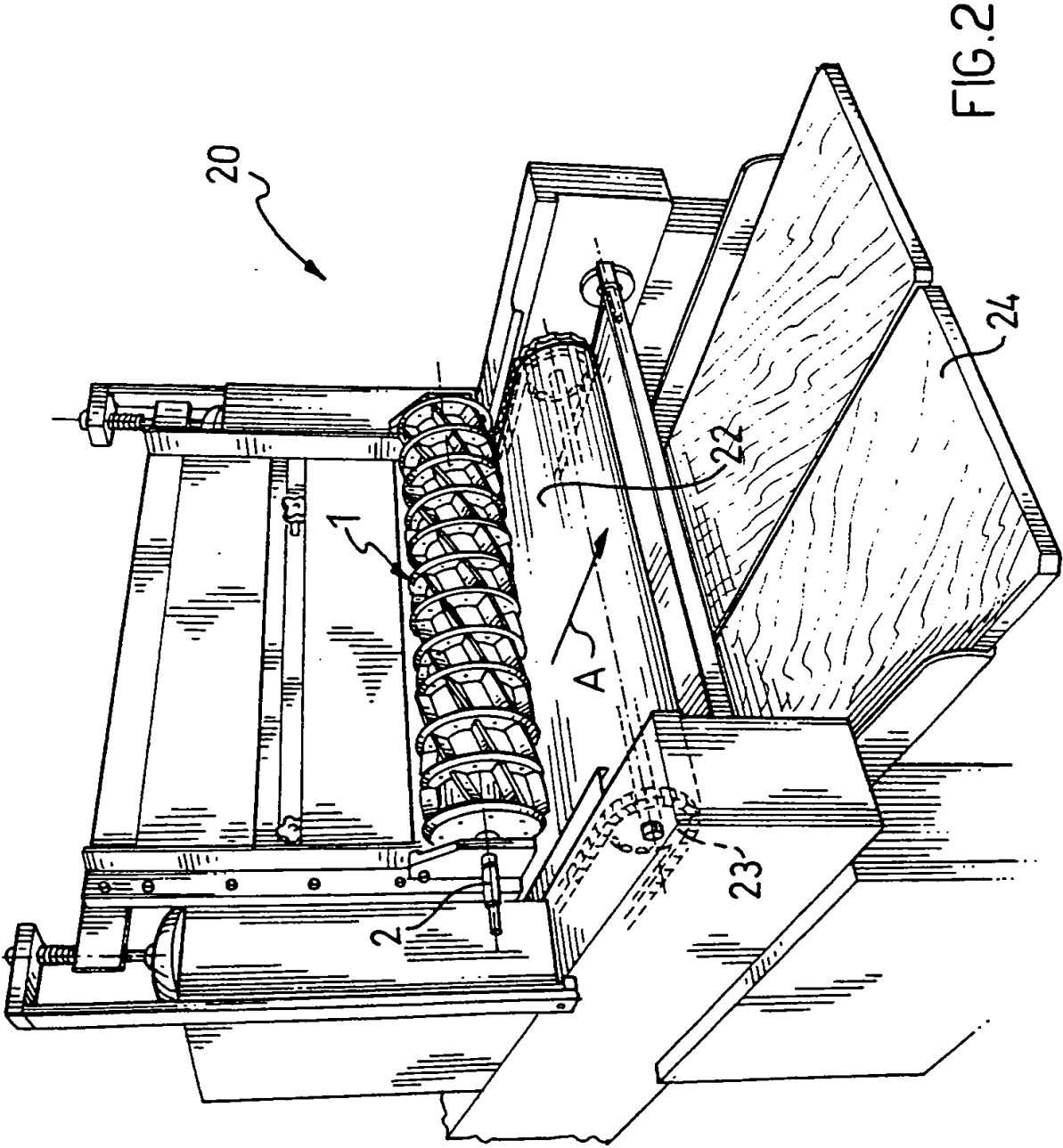
12. A shaping device according to any one of Claims 8 to 11, in which the discs (29) and the moulds (31) have respective blade-shaped edges (30) and (33) facing away from the central body (27). 5
13. A shaping device according to Claim 12, in which the edges (30) of the discs (29) lie on a single cylindrical surface coaxial with the central body (27) and the edges (33) of the moulds (31) project relative to the said cylindrical surface. 10
14. A shaping device according to any one of Claims 8 to 13, in which the discs (29) have a series of through-holes (34) and each mould (31) has a through-hole (35). 15
15. A shaping device according to any one of Claims 8 to 14, in which each mould (31) has a substantially closed profile with a cavity (32). 20
16. A shaping device according to Claim 1, in which the projecting shaping elements comprise a plurality of annular moulds projecting from the central body (3; 27) and a plurality of walls disposed annularly, alternating with the moulds, and projecting from the body. 25
17. Apparatus (20) for shaping portions of bread dough, using the shaping device according to Claim 7 or Claim 13, comprising a support frame (21) and a conveyor belt (22) extending between rollers (23) and defining a movable conveyor surface for supporting portions of bread dough and defining a direction of movement (A), in which a shaping roller (1; 25) disposed above the movable surface is freely rotatable on the said handles (2; 26) which are formed as pins and bear on the frame (21) at the sides of the belt (22) substantially parallel to the movable surface, the cylindrical surface being disposed at a predetermined distance from the movable conveyor surface such that the portions of bread dough interfere with the roller (1; 25) whilst they are supported on the movable conveyor surface. 30
35
40
45
18. Apparatus (20) according to Claim 17, in which the shaping roller (1; 25) is arranged so as to be substantially perpendicular to the direction of movement (A) of the movable conveyor surface. 50
19. A method of shaping a portion of bread dough by means of the device of preceding Claims 8 to 15 in order to produce a shaped loaf of bread which can be divided into portions and has various impressed patterns, the method being characterized in that it comprises the steps of: 55

1) rolling a portion of bread dough with the shaping roller (25) with a pressure such as to impress lines of weakening and predetermined patterns in the dough.

2) cutting the dough to produce bread shapes.

20. A cutting tool for association with the shaping device of Claims 8 to 15 in order to implement the cutting step of the method of Claim 19, characterized in that it comprises one or more cutting walls and a handle.
21. A cutting tool according to Claim 20, characterized in that it comprises two thin, flat cutting walls (37) joined in a V-shape at one side, and a tubular handle (38) arranged transverse the walls and joining the free ends of the cutting walls (37).





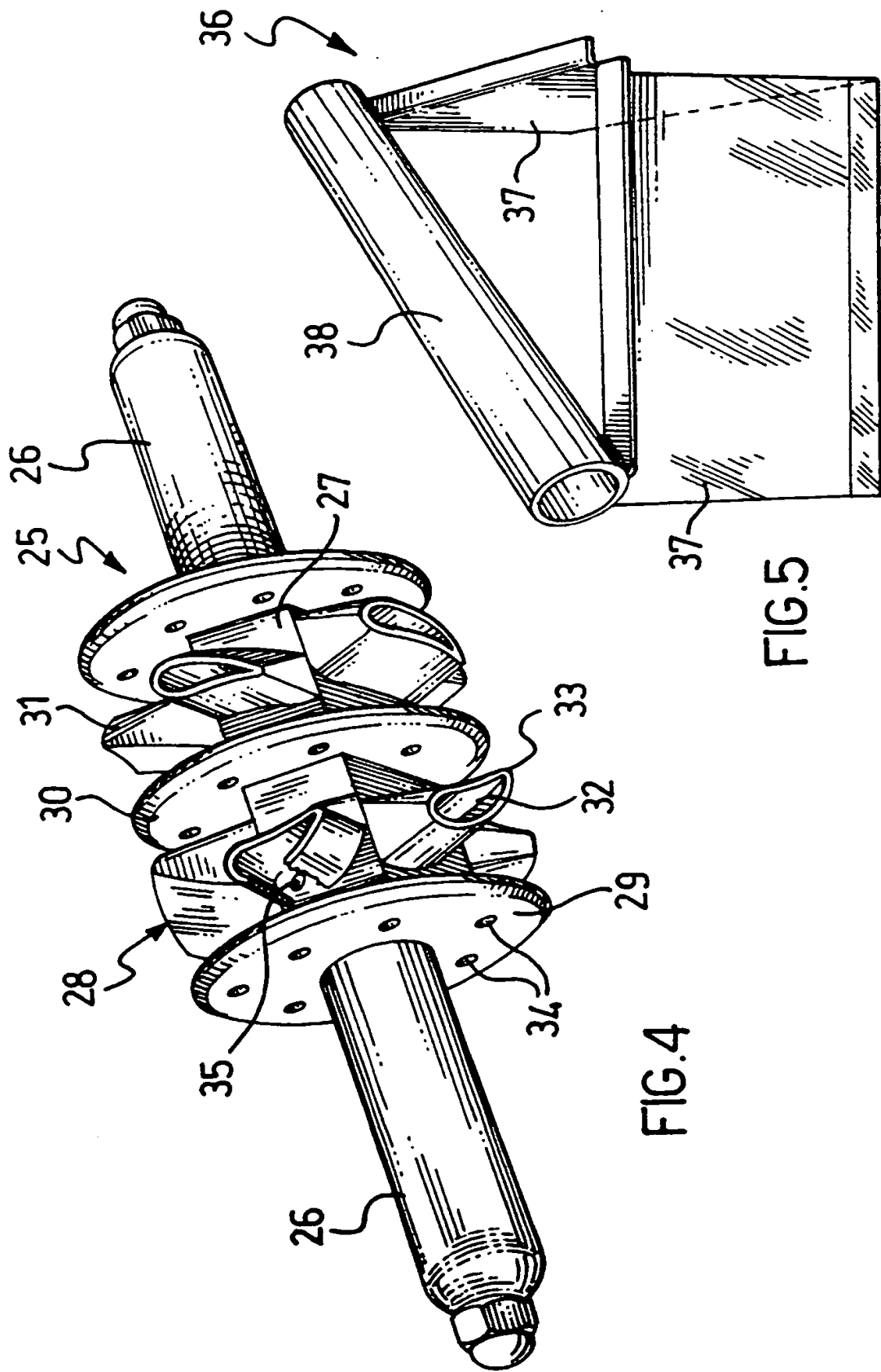


FIG. 5

FIG. 4

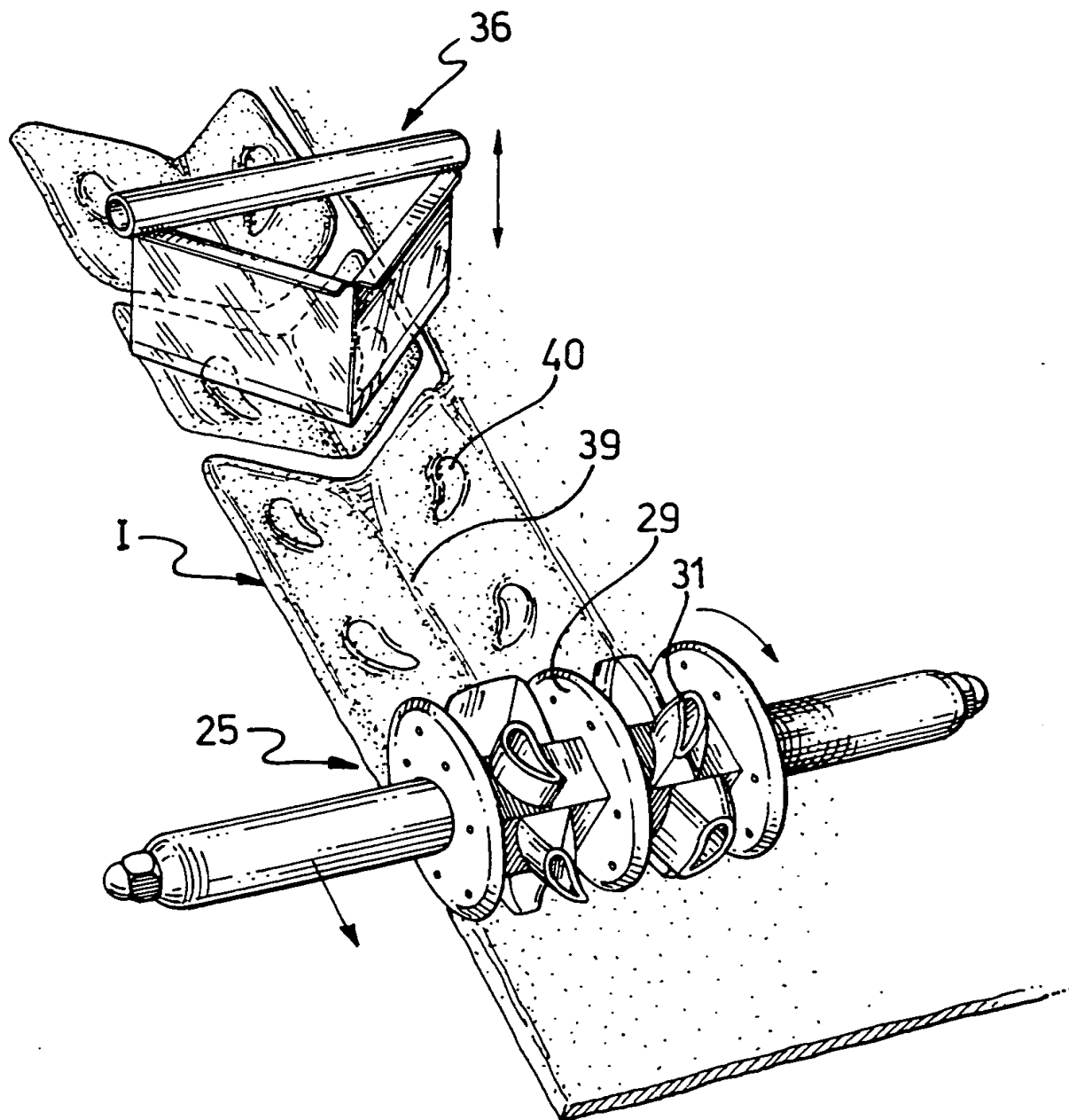


FIG. 6

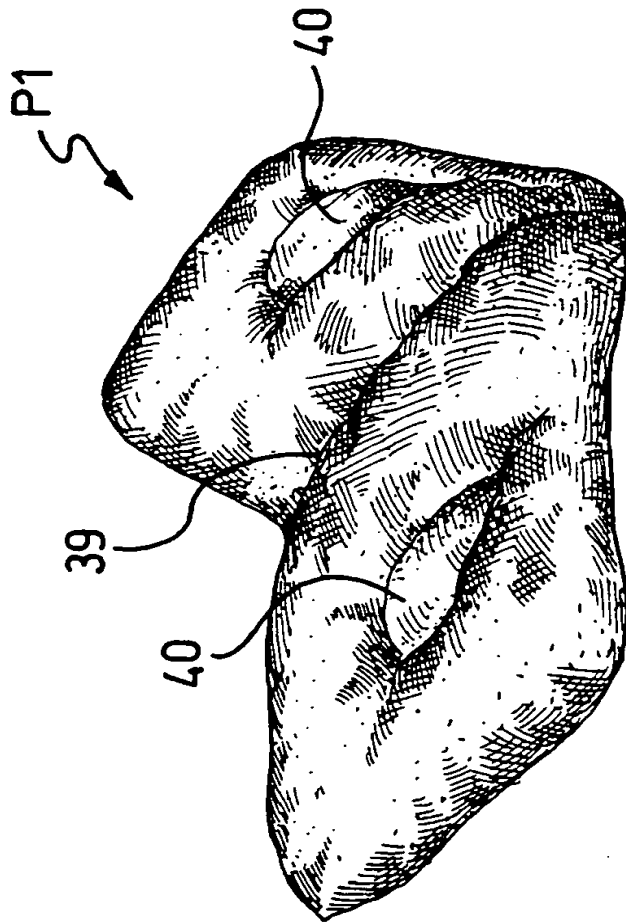


FIG. 7

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 841 009 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
14.04.1999 Bulletin 1999/15

(51) Int. Cl.⁶: **A21C 11/04**

(43) Date of publication A2:
13.05.1998 Bulletin 1998/20

(21) Application number: **97203516.6**

(22) Date of filing: **12.11.1997**

(84) Designated Contracting States:
**AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC
NL PT SE**

Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **12.11.1996 IT MI962348**
16.05.1997 IT MI971158

(71) Applicant:
Italiana Agro Alimentare S.r.l.
27029 Vigevano (Pavia) (IT)

(72) Inventors:

- **Sigoni, Riccardo**
27029 Vigevano - Pavia (IT)
- **Varvello, Franco**
27029 Vigevano - Pavia (IT)
- **Rosso, Marco**
17026 Noli - Savona (IT)

(74) Representative:

Siniscalco, Fabio et al
c/o JACOBACCI & PERANI S.p.A.
Via Visconti di Modrone, 7
20122 Milano (IT)

(54) **A device for shaping portions of bread dough or the like**

(57) A device for shaping portions of bread dough or the like comprises a roller (1; 25) having opposed side handles (2; 26), a substantially central body (3; 27), a plurality of discs (5; 29) projecting from the central body (3; 27) and extending around its periphery, and shaping elements (4; 28) projecting from the central body (3;

27). The device has the advantage of simplifying and speeding up operations to shape portions of bread dough and, at the same time, producing loaves which can easily be divided into separate bread rolls having a certain regularity of shape.

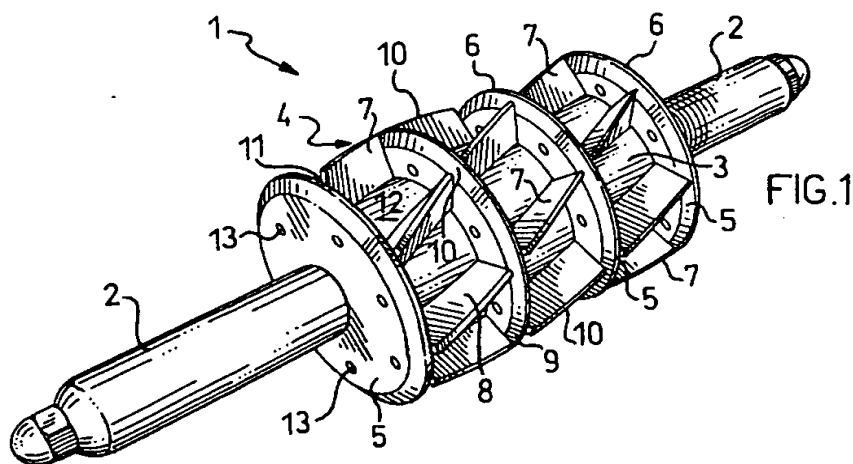


FIG.1

EP 0 841 009 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 97 20 3516

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X Y A	US 2 818 645 A (MARTIN) 7 January 1958 * the whole document *	1,6,7,16 2-4,17, 18 5,8-13, 15	A21C11/04
Y	US 3 536 014 A (KUCHURIS LOUIS G ET AL) 27 October 1970 * figures 7,8 *	2-4	
Y A	US 5 549 467 A (SCHULTZ GEORGE A) 27 August 1996 * the whole document *	17,18 19	
A	US 3 936 255 A (BELLACICCO JOSEPH VITO) 3 February 1976 * the whole document *	1-4,17, 18	
A	US 4 789 555 A (JUDD VIRGINIA L) 6 December 1988 * the whole document *	20	
P,X	WO 97 31539 A (YUSUFI NASIER AHMED) 4 September 1997 * the whole document *	1,6, 17-19	A21C
A	US 3 417 713 A (SCHWEBEL IRVING) 24 December 1968		
A	FR 781 702 A (WAALWIJK) 21 May 1935		
A	DE 28 31 195 A (SPERLING REINHARD) 24 January 1980		
A	US 2 837 043 A (GRICE ET AL) 3 June 1958		
A	US 3 994 652 A (KUZYK PETER) 30 November 1976		
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 18 February 1999	Examiner Silvis, H
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03 02 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 97 20 3516

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

18-02-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2818645 A	07-01-1958	NONE	
US 3536014 A	27-10-1970	NONE	
US 5549467 A	27-08-1996	NONE	
US 3936255 A	03-02-1976	NONE	
US 4789555 A	06-12-1988	NONE	
WO 9731539 A	04-09-1997	NL 1002456 C AU 1737297 A EP 0883348 A	12-06-1997 16-09-1997 16-12-1998
US 3417713 A	24-12-1968	NONE	
FR 781702 A	21-05-1935	NONE	
DE 2831195 A	24-01-1980	NONE	
US 2837043 A	03-06-1958	NONE	
US 3994652 A	30-11-1976	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office. No. 12/82

THIS PAGE BLANK (USPTO)